



Academic Senate  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, California 93407  
ACADEMIC SENATE  
805.756.1258

MEETING OF THE ACADEMIC SENATE  
Tuesday, January 19 2010  
UU220, 3:10 to 5:00pm

- I. **Minutes:**  
**Approval of minutes for Academic Senate meetings of November 17 and December 1 2009 (pp 2-5).**
- II. **Communication(s) and Announcement(s):**
- III. **Regular Reports:**
  - A. Academic Senate Chair:
  - B. President's Office:
  - C. Provost:
  - D. Vice President for Student Affairs:
  - E. Statewide Senate:
  - F. CFA Campus President:
  - G. ASI Representative:
  - H. Committee Chair(s):
- IV. **Consent Agenda:**
- V. **Business Item(s):**
  - A. **Resolution on Grade Forgiveness:** Lertwachara, chair of Instruction Committee, first reading (pp. 6-7).
  - B. **Resolution on Program Suspension:** Foroohar/Kurfess, chairs for Faculty Affairs and Instruction Committees, first reading (p. 8).
  - C. **Resolution on Faculty Participation in DigitalCommons@CalPoly:** Kurfess/Stankus, Instruction Committee, first reading (p. 9).
  - D. **Resolution on Proposal for the Establishment of the University Center for Innovation and Entrepreneurship:** Tornatzky/York, Orfalea College of Business, first reading (pp. 10-22).
  - E. **Resolution on Addition to Academic Senate Bylaws of the Academic Senate to Include Process for First and Second Readings:** Executive Committee, first reading (pp. 23-24).
  - F. **[4:20 time certain] Resolution on MS Fire Protection Engineering Program:** Hannings, chair of Curriculum Committee/Pascual, College of Engineering, first reading (pp. 25-31).
- VI. **Special Report(s):**
  - A. **[4:30 time certain] Conn, AVP for Inclusive Excellence/Giberti, Faculty Director:** update on WASC site visit.
  - B. **[4:40 time certain] Fisher, chair of Budget & Long-Range Planning Committee:** demonstration using the financial dashboard.
- VII. **Discussion Item(s):**
- VIII. **Adjournment:**

**CALIFORNIA POLYTECHNIC STATE UNIVERSITY**  
**San Luis Obispo, California 93407**  
**ACADEMIC SENATE**  
**805.756.1258**

**MINUTES OF**  
**The Academic Senate**  
**Tuesday, November 17, 2009**  
**UU 220, 3:10 to 5:00 p.m.**

- I. Minutes: The minutes of October 27, 2009 were approved.
- II. Communications and Announcements: none.
- III. Reports:
  - Regular Reports:
    - A. Academic Senate Chair: Fernflores reported that Statewide Academic Senate has approved a resolution asking the campuses to declare March 2, 2010 as a furlough day thought the entire CSU, with the hope of shutting down instruction for the day. This is difficult on our campus since faculty are entitled to choose their own furlough days. This issue will return as a discussion item at our next Academic Senate meeting.
    - B. President's Office: none.
    - C. Provost: none.
    - D. Vice President for Student Affairs: none.
    - E. Statewide Senate: Foroohar reported that several resolutions were passed including: (1) resolution on teaching and service responsibility in times of budget constraints, (2) resolution on furlough implementation and faculty rights, (3) resolution about moving state supported course to self-supported courses, in particular the summer session, and (4) resolution in support of reinstating the state support fund which has been cut this year. LoCascio attended a presentation by the IT people at the Chancellor's Office, who are making every effort possible to consolidate whatever can be done system wide, to take the burden off the campuses.
    - F. CFA Campus President: Saenz announced that the Chancellor's Office has asked CFA to start negotiations on the next contract much earlier than in the past.
    - G. ASI Representative: Griggs reported that California State Student Association is moving forward with a program "Made in the CSU" to attract alumni and make them aware of the budget situation.
    - H. Committee Chair(s): none.

Special Reports:


Nilgun Sungar, Reported on NSF grant to study women in STEM disciplines. PowerPoint presentation is available at < [http://www.calpoly.edu/~acadsen/minutes/09-10\\_minutes/sungar.ppt](http://www.calpoly.edu/~acadsen/minutes/09-10_minutes/sungar.ppt) >

- IV. Consent Agenda: ARCE 415, Interdisciplinary Capstone Project, was approved without discussion.
- V. Business Item(s):
- A. Resolution on the Cal Poly Statement on Commitment to Community (Morton, VP for Student Affairs, Zweifel, CAED Associate Dean): second reading. Fernflores presented this resolution, which requests that the Academic Senate accept and endorse the Cal Poly Statement on Commitment to Community. M/S/P to approve the resolution.
  - B. Resolution on Furlough Vote and Implementation Plan (Executive Committee): first reading. Fernflores presented the resolution, which attempts to capture the faculty's position on furlough vote and implementation guidelines. Resolution will return as a second reading item.
  - C. Resolution on Furlough Implementation and Faculty Rights (Executive Committee): first reading. Foroohar presented the resolution, which requests that administrators refrain from imposing additional restrictions to the implementation of furloughs. Resolution will return as a second reading item.
  - D. Resolution on AB 656: Due to lack of time, this resolution was not discussed.
  - E. Resolution on Incomplete "T" Agreements (Instruction Committee): first reading. Lertwachara, chair of the Instruction Committee presented this resolution, which requests the repeal of AS-569-01/IC, and that instructors use the enhanced feature of PeopleSoft to enter conditions for removal of an incomplete grade. Resolution will return as a second reading item.
  - F. Resolution on Grade Forgiveness: Due to lack of time, this resolution was not discussed.
  - G. Resolution on Addition to Academic Senate *Bylaws of the Academic Senate* to Include Process for First and Second Readings: Due to lack of time, this resolution was not discussed.

VI. Discussion Item(s):

The meeting was adjourned at 5:00 p.m.

Submitted by

  
Gladys Gregory  
Academic Senate

**CALIFORNIA POLYTECHNIC STATE UNIVERSITY**  
**San Luis Obispo, CA 93407**  
**ACADEMIC SENATE**

**MINUTES OF**  
**The Academic Senate**  
**Tuesday, December 1 2009**  
**UU 220, 3:00 to 5:00pm**

I. Minutes:

Minutes of the November 3 2009 Academic Senate meeting were approved without change.

II. Communications and Announcements: none.

III. Reports:

- A. Academic Senate Chair: (Fernflores) Members of the Academic Senate Executive Committee have suggested that the Senate Chair and Provost periodically send to faculty a "talking points" memo reporting on issues relevant to faculty.
- B. President's Office: none.
- C. Provost's Office: Provost Koob participated in a teleconference with other CSU Provosts and the Vice Chancellor for Academic Programs to develop plans for improving graduation rates at each campus. The report will be circulated to senators. Comments need to be received by the Provost by December 14.
- D. Vice President for Student Affairs: (Morton) Students having difficulty with their academic achievement are encouraged to visit the Academic Skills Center located on the first floor of the Library. At the beginning of each quarter, study skills seminars are offered on a wide array of topics such as learning styles, time management, stress management, memory skills, etc. Additional information is available at the Student Academic Success website.
- E. Statewide Senators: none.
- F. CFA Campus President: none.
- G. ASI: (Rugani) The ASI Executive Cabinet will be following up on the questions and comments received from its Dollars Dilemma event recently held.
- H. Committee Chair(s): (Hannings) The Curriculum Committee along with several other groups/individuals have been working on streamlining the change-of-major process at Cal Poly. A written proposal from the task force headed by Kimi Ikeda will be sent to the Curriculum Committee, college deans, and the Senate in early January. On January 21 an open meeting for faculty will be held to receive input on the proposal.

IV. Consent Agenda:

TH 295, Foundations in Theater Design, was approved by consent.



V. Business Items:

- A. **Resolution on Furlough Vote and Implementation Plan** (Executive Committee), second reading: this resolution recommends that clear guidelines be provided before furloughs can be voted upon or implemented. It also sets forth that the most equitable furlough implementation would consist of a reduction in instructional WTUs commensurate with the furlough required workload reduction amount. M/S/P (unanimous) to adopt the resolution.
- B. **Resolution on Furlough Implementation and Faculty Rights** (Executive Committee), second reading: this resolution recommends that furlough implementation at Cal Poly adhere to the guidelines presented in the CFA-CSU side letter. M/S/P to adopt the resolution.
- C. **Resolution on AB 656** (Academic Senate College of Engineering Caucus), first reading: M/S/P to move the resolution to second reading. this resolution supports Assembly Bill 656 and recommends distribution of the resolution to the CSU as well as all members of the California State Assembly and Senate. M/S/P to adopt the resolution.
- D. **Resolution on Incomplete "I" Agreements** (Academic Senate Instruction Committee), second reading: this resolution repeals AS-569-01 and requires faculty to use the online grade or class roster to enter conditions needed for removing an Incomplete grade. M/S/P to adopt the resolution.
- E. **Resolution on Grade Forgiveness** (Academic Senate Instruction Committee), first reading: this resolution repeals AS-645-06 and permits students to repeat up to 16 units for grade forgiveness. This resolution will be returned as a first reading item at the January 19 2010 Senate meeting.
- F. **Resolution on Addition to Academic Senate Bylaws of the Academic Senate to Include Process for First and Second Readings:** Due to lack of time, this resolution was not heard and will be returned as a first reading item at the January 19 2010 Senate meeting.

VI. Special Report:

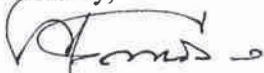
[4:30 time certain] **Jim Maraviglia gave a report on the new MCA criteria.** Cal Poly MCA criteria combines academic factors with other objective values to comprehensively review all applications for selection. The current MCA criteria uses five different models. The new criteria will use one University model. If the student is educated out of country, a separate review is made. The full presentation can be viewed at: [http://www.calpoly.edu/~acadsen/minutes/09-10\\_minutes/mca\\_presentation.doc.ppt](http://www.calpoly.edu/~acadsen/minutes/09-10_minutes/mca_presentation.doc.ppt)

VII. Discussion Item:

**March 2/March 4 statewide furlough day(s):** The CSU Academic Senate passed a resolution in November encouraging all faculty to choose Tuesday, March 2 2010, as a systemwide furlough day to "demonstration of the impact of state budget cuts on the CSU." The CSU faculty has also been asked to show its solidarity with K-12 schools and the UC system by taking some type of action on March 4 2010. The 23 CSU campuses have been asked to raise this issue with their Senates. After discussion, it was decided that Academic Senate Chair, Rachel Fernflores, would send a letter to Cal Poly faculty providing the above information, but no recommendation regarding furlough or action would be made.

VIII. Adjournment: 5:00pm

Submitted by,



Margaret Camuso  
Academic Senate Analyst

Adopted:

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

AS-\_\_\_\_-09

**RESOLUTION ON GRADE FORGIVENESS**

1 WHEREAS, AS-645-06 *Resolution on Grade Forgiveness* established that students may repeat  
2 courses for grade forgiveness only in courses that a grade of D+, D, D-, F or WU  
3 was received; and  
4

5 WHEREAS, CSU Executive Order 1037 included a policy on *Course Repeats and Grade*  
6 *Forgiveness* that allows students to repeat an individual course for grade  
7 forgiveness, if they earned grades "lower than a C;" and  
8

9 WHEREAS, CSU Executive Order 1037 does not allow individual campuses to be more  
10 restrictive on 'forgivable' grades; therefore be it  
11

12 RESOLVED: That AS-645-06 be repealed; and be it further  
13

14 RESOLVED: That undergraduate students be permitted to repeat up to 16 units for grade  
15 forgiveness in courses that they earned grades lower than a C, which is limited to a  
16 grade of C-, D+, D, D-, F, or WU; and be it further  
17

18 RESOLVED: That courses for which the original grade was a result of academic dishonesty are  
19 not eligible for grade forgiveness; and be it further  
20

21 RESOLVED: That any course is eligible for grade forgiveness one time only; and be it further  
22

23 RESOLVED: That these changes be implemented beginning Winter 2010.

Proposed by: Academic Senate Instruction Committee  
Date: November 2 2009

# Background Materials

- **CSU Executive Order 1037**

E.O. 1037 includes a policy of repetition of courses with the following requirements:

*B. Repetition of Courses*

*1. Undergraduate students may repeat courses only if they earned grades lower than a C.*

*2. Course Repeats with "Grade Forgiveness" (Grade forgiveness is the circumstance in which the new grade replaces the former grade in terms of the calculation of GPA, etc.):*

*2.a. Undergraduate students may repeat up to 16 semester-units (24 quarter-units) with grade forgiveness.*

*2.b. Undergraduate students may repeat an individual course for grade forgiveness no more than two times.*

*2.c. Grade forgiveness shall not be applicable to courses for which the original grade was the result of a finding of academic dishonesty.*

....

*4. Campuses may elect to be more restrictive on course repeats than the maxima listed above.*

The full text of E.O. 1037 can be found at <http://www.calstate.edu/EO/EO-1037.html>

- **AS-645-06 Resolution on Grade Forgiveness**

AS645-06 allows students to repeat "up to 16 units for grade forgiveness in courses that a grade of D+, D, D-, F or WU was received. The grade C- is not included in our current grade forgiveness policy. Our interpretation of the E.O. 1037 is that it allows individual campuses to be more restrictive on the number of credit units allowed and how many times a student can repeat a specific course, but not on which grades can/cannot be forgiven.

The full text of AS645-06 can be found at <http://www.calpoly.edu/~acadsen/Resolutions/2005-2006/AS-645-06.pdf>

Adopted:

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

AS-\_\_\_-10

**RESOLUTION ON PROGRAM SUSPENSION**

- 1 WHEREAS, The Academic Senate of Cal Poly recognizes that the large reduction in the University's  
2 budget has produced pressures on colleges to suspend (\*)academic programs; and  
3  
4 WHEREAS, The Academic Senate of the California State University (ASCSU) "recognizes that  
5 'emergency measures' may appear to be justified by the magnitude of the [financial] crisis,  
6 but that such measures should not eviscerate the primary role of faculty in control of the  
7 curriculum" (AS-2918-09/AA, November 5 2009); and  
8  
9 WHEREAS, The ASCSU reaffirms its commitment "to due process and active faculty consultation on  
10 program suspension..." (AS-2918-09/AA, November 5 2009); and  
11  
12 WHEREAS, The ASCSU urges all campus senates of the CSU to review and, if necessary, update their  
13 policies concerning program elimination and/or suspension (AS-2918-09/AA, November 5  
14 2009); and  
15  
16 WHEREAS, There is no Cal Poly policy on suspension of academic programs; therefore be it  
17  
18 RESOLVED: That the Academic Senate shall form a faculty task force to draft a comprehensive policy on  
19 criteria and procedures governing decisions on program suspension; and be it further  
20  
21 RESOLVED: That no academic program shall be suspended and no change shall be made in program  
22 support or student admission in such a way that the net effect suspends the program without  
23 consultation with the faculty affected by the potential change; and be it further  
24  
25 RESOLVED: That in the absence of an Academic Senate policy on program suspension, any proposal for  
26 program suspension, and/or other proposed administrative changes that would likely result  
27 in suspension of an academic program, shall be presented by the Provost/Vice President of  
28 Academic Affairs to the Academic Senate Executive Committee. The proposal will include  
29 an explicit curricular and/or administrative justification, including a cost/benefit analysis,  
30 which supports in detail the proposed suspension or change. Such proposals shall be  
31 presented in time to allow for reasonable review and to prepare a written report and  
32 recommendation, using procedures deemed appropriate by the Academic Senate Executive  
33 Committee.

(\*) *"An academic program is a structured grouping of coursework leading to a baccalaureate or graduate degree or to a teaching credential."*

Proposed by: Academic Senate Faculty Affairs Committee and Research  
& Professional Development Committee  
Date: November 22 2009  
Revised: January 5 2010



Adopted:

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

AS-\_\_\_-10

**RESOLUTION ON  
FACULTY PARTICIPATION IN DIGITALCOMMONS@CALPOLY**

1 WHEREAS, Cal Poly is committed to disseminating the fruits of its research, scholarship and  
2 creative activities (RSCA) as widely as possible; and  
3

4 WHEREAS, Results of the WASC student survey strongly suggest faculty engagement in their  
5 disciplines by way of RSCA is a benefit for students; and  
6

7 WHEREAS, A single repository providing access to faculty scholarship and expertise enhances  
8 interdisciplinary and collaborative RSCA; and  
9

10 WHEREAS, Such an online university repository currently exists in the  
11 DigitalCommons@CalPoly (<http://digitalcommons.calpoly.edu>); and  
12

13 WHEREAS, DigitalCommons@CalPoly provides many benefits to faculty including increased  
14 visibility, availability and use of faculty research by new audiences; and  
15

16 WHEREAS, DigitalCommons@CalPoly is currently archiving both faculty scholarship and  
17 student scholarship, including graduate theses and project reports, and senior  
18 projects; therefore be it  
19

20 RESOLVED: That the Cal Poly Academic Senate recommends campus-wide faculty  
21 participation in the University repository to enhance global access and availability  
22 of RSCA; and be it further  
23

24 RESOLVED: That the Cal Poly Academic Senate recommend participation by Cal Poly institutes  
25 and centers to enhance the visibility of their research outputs.

Proposed by: Academic Senate Research and  
Professional Development Committee

Date: November 6 2009

Adopted:

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

AS-\_\_-10

**RESOLUTION ON  
PROPOSAL FOR THE ESTABLISHMENT OF THE  
UNIVERSITY CENTER FOR INNOVATION AND ENTREPRENEURSHIP**

RESOLVED: That the Academic Senate of Cal Poly endorse the attached proposal for establishment of the **University Center for Innovation and Entrepreneurship**.

Proposed by: Orfalea College of Business  
Date: November 24 2009

State of California  
**M e m o r a n d u m**

**RECEIVED**  
NOV 24 2009  
**ACADEMIC SENATE**

**CAL POLY**  
SAN LUIS OBISPO  
CA 93407

To: Rachel Fernflores, Chair  
Academic Senate

Date: November 19, 2009

From: Robert D. Koob   
Provost and Vice President of Academic Affairs

Copies: Susan Opava  
Dave Christy  
Lou Tornatzky  
Jonathan York

Subject: **Request for Academic Senate Review of the  
Proposal for the Establishment of a University  
Center for Innovation and Entrepreneurship**

---

Attached is a copy of a proposal to establish a University Center for Innovation and Entrepreneurship. In accordance with campus policy for the Establishment, Evaluation and Discontinuation of Centers and Institutes, this proposal received conceptual approval by the Academic Deans' Council at its meeting on November 16, 2009. I would now appreciate the Academic Senate's review of this proposal. Simultaneously an *ad hoc* committee, appointed by me, will review organizational and financial aspects of the proposed center. Please feel free to contact Drs. Lou Tornatzky or Jonathan York in the Orfalea College of Business, authors of the proposal, should you have any questions or would like them to make a presentation to the Academic Senate.

Thank you, and if you have any questions, please do not hesitate to contact my office.

Attachment



**Proposal for a University Center for Innovation and  
Entrepreneurship**

**California Polytechnic State University**

Submitted by

Louis G. Tornatzky, Ph.D.    Jonathan L. York, Ph.D.  
Orfalea College of Business

October, 2009

Submitted to

Dave Christy, Dean, Orfalea College of Business



“The core elements of an entrepreneurial university are: a strengthened steering core with a clear vision and mission, boundary spanning structures and mechanisms to interact with the “outside” world (external stakeholders), a diversified funding base (less state funding), inter- and multidisciplinary activity and an integrated entrepreneurial culture.<sup>1</sup>”

*from the World Economic Forum's 2009 Report on  
entrepreneurship education*

### **Background and Purpose**

This proposal develops the rationale and goals for a **University Center for Innovation and Entrepreneurship** at Cal Poly. The proposed Center would enhance classroom and field-learning opportunities for students across the campus, encourage interdisciplinary scholarly research and publication, and be a resource for the university as it evolves its role in innovation, creativity, entrepreneurship, technology commercialization and regional technological and economic development. Moreover, it would perform an important coordinating and clearinghouse role among students, faculty and staff who are deeply interested in these issues.

The proposal has its origins in informal discussions between Dr. Tornatzky and Dr. York, with Dr. Susan Opava, Dean of Research and Graduate Studies at Cal Poly, Dr. Robert Koob, Provost, and Dr. Dave Christy, Dean of the Orfalea College of Business on how to best expand the mission interests of the institution in the area of entrepreneurship and innovation. These preliminary interactions have been supplemented with discussions with a much larger cohort of interested parties, both on campus and in the community (Appendix A) several of whom would be formally affiliated with the Center when it launches. Based on these interactions, and research that we have conducted on national trends and practices at other universities, we believe that there is a strong case for the formation of a University Center for Innovation and Entrepreneurship that could yield numerous programmatic enhancements at Cal Poly, such as:

- An enlarged, focused and more interdisciplinary program of undergraduate and graduate instruction in innovation and entrepreneurship;
- A significantly enhanced effort to foster hands-on entrepreneurial experiences, both within the university and in collaboration with community organizations and entrepreneurs, consistent with the polytechnic and learn-by-doing orientation of the institution;
- A more robust program of research, scholarship and policy studies dealing with entrepreneurship and innovation;
- A partner in Cal Poly's increasing involvement in technology commercialization in evaluating, “incubating,” and supporting faculty and students' entrepreneurial activities;

---

<sup>1</sup> World Economic Forum, Educating the Next Wave of Entrepreneurs, Geneva, Switzerland, 2009.

- An active participant in and supporter of Cal Poly's role in regional economic development, especially where it comes to technology-based start-ups and innovative growth practices in existing companies;
- An administrative and philosophical "home" and/or support system for entrepreneurial activities and programs such as intra- and inter-university competitions, lecture series and symposia;
- A venue for domestic and international collaboration with universities with comparable missions and interests in innovation and entrepreneurship (e.g., Politecnico di Milano, Helsinki University of Technology, Chalmers University of Technology, Grand l'Ecole des Mines de Paris) with which Cal Poly already has significant or budding exchange relationships.

It should be emphasized that while many of the above activities are being implemented at some level at Cal Poly, their full flowering will benefit from the establishment of a Center. The experience of many universities is that a Center can leverage significant external support in the form of dedicated gifts, grants and contracts, as well as function as a lightning rod for change. We also believe that the Cal Poly context and "brand" will be a significant asset. However, only an officially sanctioned and approved Center can be competitive in the soft money arena.

In the following pages, the authors further develop the argument for a **University Center for Innovation and Entrepreneurship** located administratively in the Orfalea College of Business along with a concurrent coordinating relationship with the Dean of Research and Graduate Programs consistent with its campus wide interdisciplinary vision. The two principals leading this development effort (York and Tornatzky) have appointments in OCOB, but from the beginning of the planning effort many individuals from other colleges have been involved. Moreover, as the center evolves it will truly become a University Center in terms of the breadth of its activities, units and individuals involved and its face to the world.

### **Background and Context**

Entrepreneurship and innovation are topics that preoccupy academics, business and government leaders, and the country's imagination. If one "Scholar-Google" on either term, the resulting search yields hits in the hundreds of thousands. Nationally prominent private and government foundations (e.g., Ewing Marion Kauffman, National Science Foundation) have focused and expanded their program agendas on fostering entrepreneurship and innovation. Even in a time of economic disorder, that portion of the U.S. and California economies that focuses on technologically innovative entrepreneurial startups remains the envy of the world.

Most important from the university perspective is the fact that the growth of entrepreneurship centers, research programs, and dedicated positions (e.g., endowed chairs) has been phenomenal over the past decade. For example, the Global Consortium of Entrepreneurship Centers has over 200 sanctioned university programs as members.

Almost all of these Centers focus on both innovation and entrepreneurship as tightly linked activities. Also, a 2004 Kauffman Foundation study found 404 endowed chairs in entrepreneurship in the U.S. alone. There is also a growing link between entrepreneurship education and research and regional economic development, particularly university technology transfer resulting in the establishment of technology-based startups. Both of the authors of this proposal have been involved in the practice and study of these phenomena (e.g., NSF-supported national benchmarking<sup>2</sup>).

While the small enterprise, entrepreneurial portion of the US economy has been the major source of new jobs for over two decades, there is a subcomponent – the “gazelle” companies – that account for a disproportionate fraction of that economic growth. Typically, gazelle firms have been particularly clever and innovative in their products and business models, often commercializing research-based innovations from universities.

There is also a strong relationship between successful entrepreneurship and the mastery of innovation processes and technological creativity. The more successful entrepreneurs tend to be more innovative, and the more innovative companies tend to be entrepreneurial – or “intrapreneurial” in the case of larger companies. By illustration, a business best-seller entitled *The Innovator's Dilemma*<sup>3</sup> has documented the extent to which most large corporations are unable to adopt or implement radical technological innovations and spend most of their efforts on incremental, cost-saving changes to production processes or product features. Thus the proposed Center must place significant effort on understanding and implementing innovation processes wherever they occur. While the scholarly literature in this area is large<sup>4</sup>, there are nonetheless many opportunities for Cal Poly to make a contribution.

As the World Economic Forum report Educating the Next Wave of Entrepreneurs notes, “The design of adequate framework conditions by universities and governments should not only serve to support entrepreneurship education and the recognition of credible entrepreneurial opportunities, but also to establish the further entrepreneurial ‘support chain’ of technology commercialization and academic spin-off activity in higher education contexts.”<sup>5</sup>

For example, in the public policy domain over the past 15 years, the vast majority of state governments and regional organizations have tuned their economic development strategies so as to pay more deliberate attention to nurturing technological innovation – particularly with state-based research universities as key players<sup>6</sup> - with the hope that it

---

<sup>2</sup> Tornatzky, L. G. “Benchmarking University-Industry Technology Transfer: A Six Year Retrospective.” *Journal of Technology Transfer*, 26, 269-277, 2001.

<sup>3</sup> Christensen, C. M. *The Innovator's Dilemma: When New Technology Causes Great Firms to Fail*. Cambridge, MA: Harvard Business School Press, 1997.

<sup>4</sup> Tornatzky, L. and Fleisher, M. *The Processes of Technological Innovation*. Lexington, MA: DC Heath, 1990; Rogers, E. *Diffusion of Innovation*. 5<sup>th</sup> edition. New York: Free Press, 2003.

<sup>5</sup> World Economic Forum, Op. cit

<sup>6</sup> Tornatzky, L.G., Waugaman, P. G., and Gray, D. O. *Innovation U. : New University Roles in a Knowledge Economy*. Research Triangle Park, NC: Southern Growth Policies Board, 2002.



will help anchor high wage, high technology companies in their region. Increasingly these public policy initiatives are focused on the nurturance of entrepreneurial ventures, through the establishment of business incubators<sup>7</sup>, public-private seed funds and university-based entrepreneurship centers.

At the same time, the public sector continues to struggle with the problem of how to serve its constituencies more effectively. Often this discussion involves not what to do, but how to export the culture and practices of private sector entrepreneurship to the public domain, and how to effectively foster innovation processes and disseminate and implement innovations that are already proven. This problem repeats itself in settings as disparate as public education, sustainability or mental health.

### **Why Is a Center Needed?**

This proposal for the establishment of the University Center for Innovation and Entrepreneurship at Cal Poly represents the coming together in time of several significant activities and trends that make this the right time:

- An increased focus on technology commercialization at Cal Poly at both university and college levels, with a rapidly growing interest in leveraging research into new companies;
- Significant growth in faculty research and grant activity, particularly in areas that have entrepreneurial potential and incorporate interdisciplinary innovation;
- Establishment of a tenure track faculty position in entrepreneurship in the Orfalea College of Business with the concomitant energizing of the entrepreneurship curriculum;
- Establishment of a clearer role for Cal Poly in regional economic development efforts and a more robust series of conversations between the university and relevant organizations (e.g., SLO Chamber of Commerce);
- Increasing cross-departmental research cooperation with entrepreneurship potential;
- Increased faculty interest and involvement in technology innovation and commercialization, expressed in both new and revised curricula as well as in new approaches to long-standing Cal Poly traditions, such as the Senior Project;
- Efforts on behalf of Cal Poly and the community to better identify and catalogue the significant entrepreneurial efforts of Cal Poly alumni over the past decade, resulting in a large list of potential supporters of a variety of entrepreneurial activities and research;
- Development of specialized facilities with implications for entrepreneurship instruction and practice, such as a recently configured Entrepreneurial Ideation

---

<sup>7</sup> Tornatzky, L., Sherman, H., and Adkins, D. *Incubating Technology Business: A National Benchmarking Study*. Athens, O: National Business Incubation Association, 2003.



Laboratory (EIL, 38-133), in the Orfalea College of Business, that is patterned after approaches pioneered by IDEO and in Stanford design facilities.

### **What Will the Proposed Center Do?**

Based on the existing research on and practice of innovation and entrepreneurship – and the shortcomings therein – we believe that a strong case can be made for a University Center with the following features:

- A Center that cuts across and integrates different disciplinary concepts, methods and approaches;
- A Center that is tied to applications, and to fostering innovation and entrepreneurship in a polytechnic, learn-by-doing context;
- A Center that bridges epistemological boundaries between business, engineering, the social sciences, the humanities and the physical and natural sciences.

We also believe that Cal Poly is the logical parent for such an organization as the proposed University Center for Innovation and Entrepreneurship, for the following reasons:

- Cal Poly today has a critical mass of faculty, staff and business partners actively involved in technological innovation and entrepreneurship;
- Cal Poly is evolving a culture of entrepreneurship that focuses industrial partnerships on new ventures;
- Cal Poly is increasingly involved in community partnerships trying to foster an entrepreneurial, technology-based regional economy;
- As a polytechnic university, innovation is at the core of what Cal Poly does and is.

### **How Would a University Center for Innovation and Entrepreneurship Work?**

Four issues are particularly pertinent to answering this question: vision and mission; structure; leadership; and funding.

***Vision and Mission.*** The vision is to create a nationally recognized education, research, action and advocacy center concerned with the processes, structures and outcomes of entrepreneurship and innovation. The mission is to educate more students more intensively in these areas, foster research in entrepreneurship and innovation and enable the practice of entrepreneurship in our campus and regional community.

***Structure and Leadership.*** The Center would function as an R&D and outreach entity, with a modest amount of core “hard money” support (ideally in the form of endowment) that would also be highly leveraged in terms of external grants and contracts. A small leadership cohort would receive guidance from a Center Advisory Board, with members from campus, regional and national organizations. Many of the members of this Board can be drawn from the list of interested parties in Appendix A. Researchers and practitioners from across the country would be invited to be affiliated Scholars, and

partner with Cal Poly-based faculty. The primary unit of activity would be the Project, all of which would be externally funded and most of which would involve collaboration between faculty from various units and institutions on campus, as well as partnerships from regional and national entities.

It is recommended that intellectual and scientific leadership (Director) of the Center during a two-year launch period be shared between Dr. Louis Tornatzky and Dr. Jonathan York (working initially on a partial released time basis). Since Dr. Tornatzky and Dr. York are both tenure track faculty members in the College of Business, with leadership responsibilities in the Entrepreneurship Concentration therein, there will be a natural and enduring linkage to the College of Business. In addition, a staff Administrator will be folded into Center operations, starting initially on a part-time basis. It should be emphasized however, that the Center can only accomplish its vision and mission if it is seen, and is in fact, an organization that serves the entire campus as well as being seen as a community asset. In Appendix B, *vitae* have been provided for Drs. Tornatzky and York.

**Launch Funding.** As suggested above, the Center is visualized as eventually a predominantly soft money operation, supported by a variety of public and private "investors." Initially, a modest amount of launch resources, in cash or in kind, for the first two years of operation will need to be secured, probably in the range of \$25-100K per year. This could be raised privately through grants and/or individual supporters, with a small amount of initial University funding through the Orfalea College of Business and the Office of Research and Graduate Programs. It would be reasonable to expect that within 6-9 months a number of proposals would be under review by federal funding agencies, foundations and private donors. If funded, and of sufficient magnitude, there would be eventual IDC recovery that would accrue to the Center.

In the longer term, a stable source of endowment-based funding would be desirable to support the ongoing administrative functions of the Center, as well as to kick-start and match-fund Center Activities (see below).

We expect to reach a goal of steady-state level of funding in the range of \$250-500K per year from a variety of sources within 2-3 years after official launch. A more detailed depiction of future funding expectations is presented in Appendix D. Both of the founding leaders of this center have an established track record in securing financing such as this. Over his career, Dr. Tornatzky has secured well over \$10 million in external research funding from various agencies and foundations. In his previous positions, Dr. York has raised over \$150 million in public and private funds for business, civic, and academic projects.

### **Illustrative Activities and Projects**

The work of the Center is expected to be quite diverse and will include research and "action" projects, with one-time events alongside multi-year work, which will be



attractive to a wide variety of potential “investors.” The following are the best opportunities for building a portfolio of sponsored projects and activities:

***Research Studies of Innovation and Entrepreneurial Processes.*** Despite a relatively rich body of research, across a range of disciplines, there are still a number of important questions about innovation and entrepreneurial processes, that have been a difficult challenge for academic institutions. Simply put, the phenomena do not fit well with the typical structures and processes of the academic world, nor do they match well with the disciplinary structure of universities. For example, one of the most complete integrative reviews<sup>8</sup> of the conceptual and empirical literature on innovation argued the following:

- Entrepreneurship and innovation are not discrete events, but processes that encompass many events and many explanatory factors that cut across disciplinary boundaries;
- Entrepreneurship and innovation are longitudinal processes, often taking years, and the events and explanatory factors are qualitatively distinct depending on where one is in the overall process;
- Entrepreneurship and innovation processes occur at different levels, often simultaneously, that in turn do not correspond to the conceptual domains and preferred methodologies of academic disciplines or sub-disciplines.

This state of the field suggests that there is an opportunity to focus Cal Poly’s research assets, through the enabling role of the Center, on topics that have conceptual and practical value. For example, these include: the cultural underpinnings of university technology transfer; organizational and inter-organizational structures facilitating technological innovation; risk-taking and innovation; and the regional economics of entrepreneurship. Studies of this nature are likely to be funded by the discipline-based programs of NSF or similar agencies, or larger national foundations. The Center will emphasize interdisciplinary projects relating to both innovation and entrepreneurship.

***Projects Fostering Campus and Community Entrepreneurship and Innovation.*** There is now a rich experience base of activities that can foster student and community interest and involvement in entrepreneurship. In the past year, the pace of entrepreneurship activities on campus has quickened. Among these have been:

- Drs. Christy and Tornatzky hosted an Entrepreneurship Forum at Cal Poly in the fall of 2008 that brought together faculty from across the campus, community business and technology leaders, and venture capitalists to highlight entrepreneurial progress at the University;
- Dr. Susan Opava, Dean of Research and Graduate Programs, has been sponsoring a quarterly forum focused on technology transfer activities and recent innovations by Cal Poly faculty. These events have been well attended by CEOs and Chief Technology/Engineering Officers from high-tech companies in the region as well as Cal Poly faculty researchers;

---

<sup>8</sup> Tornatzky and Fleischer. *The Processes of Technological Innovation*. Op cit.

- Dr. Opava sponsored an extended visit this past year by Dr. Ken Walters and Dr. Alvin Kwiram, who met with many groups across campus to share their experience in a variety of areas related to entrepreneurship and technology commercialization at the University of Washington;
- Innovation activity among faculty has increased dramatically in recent years, resulting in a steady stream of invention disclosures to the Office of Research and Graduate Programs and a concomitant increase in the filing of patent applications and issuance of patents;
- Both the Ray Scherr Business Plan Competition and Innovation Quest have seen an increase in the quality of the applicants and the leaders of Innovation Quest have planned a summer activity to provide more business development support to this year's winners;
- Drs. York and Tornatzky have been meeting regularly with faculty in the College of Engineering across most of their disciplines to seek avenues for collaboration in entrepreneurship activities;
- Dr. York and a group of students have re-started the Entrepreneurship Club, Cal Poly Entrepreneurs which will commence a full range of activities in the Fall of 2009. A fall kickoff meeting was held in the Entrepreneurial Ideation Lab (EIL) and drew 35 students from 4 colleges;
- The Cal Poly Office of University Housing, Department of Apartment Life and Education, has designated an "Entrepreneurship Learning Center" at Poly Canyon Village. Drs. York and Tornatzky are assisting in the launch of this program for the 09-10 academic year;
- Conversations are well along with the Dean of Libraries to co-host, at the library, entrepreneurship related events, perhaps modeled after the MIT Enterprise Forum;
- The marketing faculty in the Orfalea College of Business have focused their curriculum on innovation and in project-based courses supporting startups and new business opportunities.

There is also an opportunity to foster general awareness and knowledge among faculty members about technology transfer policies and procedures – particularly with an eye to startups – by conducting short seminars at targeted disciplines and individuals. Tornatzky has been involved in such work in the past.

***Fostering Venture Incubation.*** In the past, and still at this point in time, the "deal flow" of potential entrepreneurial ventures coming out of the Cal Poly community – faculty, students and staff – has been quite modest. Nonetheless, it is increasing (as noted above) as is a perceived need for some kind of technology commercialization and business support services. The Dean of Research and Graduate Programs, Dr. Susan Opava, and Jim Dunning, Project Administrator for C3RP, have been working on this problem and the University Center for Innovation and Entrepreneurship would be an asset to those efforts, particularly given the past experiences of the initial Center leadership.



While a fully functioning incubator facility may not yet be justified, there is an opportunity and need to develop a transitional structure providing such services. This could be achieved by the establishment of non-residential "virtual" incubation services, in partnership with local experienced entrepreneurs. In addition, with the Cal Poly Technology Park coming on line within the next 15 months, this could provide another venue for time-limited virtual and physical incubation activities. A plan is being considered for a small incubation space in the building funded through sponsorships. Dr. Tornatzky serves on the Academic Advisory Committee for the Technology Park project, and Dr. York serves on the San Luis Obispo Chamber's Economic Development Collaboration Committee as one of Cal Poly's representatives, along with Provost Koob, Susan Opava and Jim Dunning.

***Evaluation and Benchmarking Studies of Innovation and Entrepreneurship Outcomes.***

While understanding innovation and entrepreneurial processes is the intellectual thread that ties this body of work together, often progress toward this goal can be reached via work that is primarily looking at outcomes. For example, under Dr. Tornatzky's direction, the Southern Technology Council executed a 10-year program of "benchmarking" research that examined technology transfer outcomes across research universities in the South. There is a great need to expand and update work such as this and develop a more comprehensive set of metrics, tools and analytic methods. Currently, Dr. Tornatzky and Dr. York are in the early stages of a national study of long-term outcomes of regional entrepreneurial public-private initiatives. Also, Drs. Tornatzky and York, along with Dr. Lynn Metcalf and Dr. Stern Neill, have submitted to the National Science Foundation a research proposal on "marooned assets" in innovation and technology, which will examine university-community technology collaboration in smaller university communities that are geographically isolated.

***Culture-Changing Events and Activities.*** Historically, the exposure of the Cal Poly community to entrepreneurship and entrepreneurs has been limited and hit-or-miss. As a result, student and faculty interest and involvement has been much less than at other campuses. Similarly, at campuses that are active and successful in fostering technology-based ventures, there is lore, a set of stories and cultural values that encourages entrepreneurship among faculty and students. In order to accelerate the visibility and actual deal flow of entrepreneurial ventures, an awareness and culture building process needs to be undertaken, in which the Center will play a role and which will involve both students and faculty, as well as the broader entrepreneurial community. These could include: an entrepreneurship mentoring series; organizing entrepreneurship events such as "fairs"; accelerating the scope and prominence of the business plan competition; organizing field trips to entrepreneurship events (e.g., Tornatzky has been leading student attendance at events hosted by the MIT Enterprise Forum based in Santa Barbara); facilitating exposure to entrepreneurship enabling organizations (e.g., Plug and Play Tech Center) and encouraging participation in entrepreneurship activities on campus that bridge disciplines and colleges. All of these events and activities have cumulative impacts that tend to "tip" the culture. The goal would be that within the foreseeable future the student and faculty culture at Cal Poly regarding entrepreneurship would look more like a Stanford or MIT than it does now.

### **Vetting the Center Concept**

At the suggestion of Drs. Christy, Opava and Koob, conversations have been conducted with a range of on-campus and community stakeholders to discuss the concepts behind this proposal and potential action items. We have identified and talked with faculty members, administrators and staff who have substantive interests in entrepreneurship and innovation, who might want to affiliate with such a Center, and who would be willing to be involved in further planning and fund raising. A parallel process was also undertaken in the community – identifying and enlisting private sector parties including venture investors, technology entrepreneurs and economic development officials.

The outcomes of that process have been positive and substantive, and this version of the Center Proposal reflects many suggestions that we received. Nonetheless, the question of **whether** Cal Poly should play a larger role in entrepreneurship and innovation education, scholarship and practice seemed to be a “no-brainer” for the admittedly biased sample of informants. Their message was: do it; do it now; and do it as big as current and future resources permit.

Adopted:

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

**AS-\_\_-09**

**RESOLUTION ON ADDITION TO  
ACADEMIC SENATE *BYLAWS OF THE ACADEMIC SENATE*  
TO INCLUDE PROCESS FOR FIRST AND SECOND READINGS**

1 WHEREAS, The Academic Senate of Cal Poly conducts its meetings in accordance with  
2 *Robert's Rules of Order*; and  
3

4 WHEREAS, The protocol for CSU Academic Senates as well as the statewide Academic Senate  
5 is to submit an item in the form of a written resolution which is then deliberated  
6 over two meetings as a first and second reading; and  
7

8 WHEREAS, First and second readings allow for reflective consideration of issues brought  
9 before the Senate; and  
10

11 WHEREAS, *Robert's Rules of Order* does not address the deliberative process for first and  
12 second readings; therefore be it  
13

14 RESOLVED: That the following guidelines be used by the Academic Senate for first reading  
15 items:

- 16 • a first reading is a time for suggestions to be made to a resolution for its  
17 improvement. The resolution still belongs to its author and is not yet  
18 amendable
- 19 • a motion to suspend the rules may be used to move time-sensitive  
20 resolutions to second reading at the same meeting (a motion to suspend the  
21 rules is will be debatable in this case). Items cannot be moved to a second  
22 reading without compelling reason (the Senate Chair determines whether a  
23 reason is "compelling;" the Chair's ruling can be overruled by the body)
- 24 • if a matter is clearly noncontroversial, time may be saved by asking for  
25 unanimous consent rather than making a formal motion to suspend the  
26 rules
- 27 • the resolution may be moved to a second reading at a future meeting; and  
28 be it further

29 RESOLVED: That the following guidelines be used by the Academic Senate for second reading  
30 items:

- 31 • the motion to adopt the resolution must be moved and seconded before
- 32 debate ensues. It then belongs to the body and may be amended
- 33 • documents attached to a resolution are not amendable
- 34 • amendments of one sentence or more must be made in writing and
- 35 submitted to the Senate in advance; and be it further
- 36

37 RESOLVED: That Article V, paragraph D, of the *Bylaws of the Academic Senate* be added to  
38 include the following provision:  
39

40 First reading: voting on substantive resolutions (i.e., those involving University  
41 policy or those in which the Senate takes a position on an issue) takes place in two  
42 stages: first reading and second reading. In first reading, the resolution is  
43 introduced and suggestions for improvement or clarification are in order in first  
44 reading, but not amendments. The first reading of a resolution is concluded if (1)  
45 there is no one remaining who wishes to speak on the resolution, (2) a motion to  
46 close debate is passed (requires a two-thirds vote), or a motion is approved to  
47 move the resolution to second reading (requires a two-thirds vote, is debatable,  
48 and requires a compelling reason [determined by the Senate Chair, can be  
49 overruled by the body]). If a matter is noncontroversial, rather than a motion to  
50 suspend the rules, unanimous consent can be given by the body.

51  
52 Second reading: voting on substantive resolutions shall take place only after a  
53 second reading of the resolution at a meeting subsequent to the meeting at which it  
54 was first introduced, except that the Academic Senate, by two-thirds vote of the  
55 senators present, may waive this requirement. After the motion has been moved  
56 and seconded, amendments may be presented for action by the Senate.  
57 Amendments of one sentence or more must be made in writing and submitted to  
58 the Academic Senate office in advance. Documents attached to a resolution are not  
59 amendable.

Proposed by: Academic Senate Executive Committee  
Date: October 13 2009  
Revised: October 13 2009  
Revised: November 17 2009

Adopted:

**ACADEMIC SENATE  
of  
CALIFORNIA POLYTECHNIC STATE UNIVERSITY  
San Luis Obispo, CA**

**AS-\_\_\_\_-10**

**RESOLUTION ON  
PROPOSED NEW PILOT DEGREE PROGRAM:  
MASTERS OF SCIENCE IN FIRE PROTECTION ENGINEERING**

- 1 WHEREAS, There are no Fire Protection Engineering Masters programs in the Western United  
2 States; and  
3  
4 WHEREAS, There is significant industry demand and support for such a program at Cal Poly;  
5 therefore be it  
6  
7 RESOLVED: That the Academic Senate at Cal Poly endorse the implementation of the attached  
8 proposal for a Masters Degree in Fire Protection Engineering as a five-year pilot  
9 program commencing in fall quarter 2010.

Proposed by: Academic Senate Curriculum Committee  
Date: December 4 2009



**Cal Poly, San Luis Obispo**

**Summary Statement of Proposed New Degree Program for  
CSU Academic Master Plan Projection**

**1. Title of proposed program:**

Master of Science in Fire Protection Engineering

**2. Reason for proposing the program:**

The need for fire protection engineers, especially in California and the Western States, is growing critical. The projected large numbers of retirements in the field of fire protection engineering, increasing challenges due to California's wildland/urban interface environment, new state structural regulations related to fire protection, and the lack of any higher education providers is creating a situation that needs to be addressed immediately. The challenge of fire in the wildland/urban interface, which can be defined as those areas where structures and wildland vegetation coincide, is of particular concern in California due to climate and growth factors. The program is primarily targeted toward people with undergraduate degrees in engineering who want to earn a master's degree and obtain their professional license in fire protection engineering. Fire protection engineering firms have asked California Polytechnic State University to develop this program in response to this critical shortage of fire protection engineers in California and the western states. Currently, there are only two universities on the East Coast that offer a master's degree in fire protection engineering, Worcester Polytechnic Institute and the University of Maryland.

**3. Expected student learning outcomes and methods for assessing outcomes:**

Upon completion of this program, the students will possess the necessary knowledge and skills to pursue professional certification and licensure in the fire protection engineering discipline. Furthermore, the program will address unique fire challenges faced by California and other western states, including wildland-urban interface fires and post-earthquake fires.

The educational objective of the Fire Protection Engineering program is to provide students with the knowledge, skills and tools needed to solve fire protection engineering problems and develop fire safety design solutions in a variety of professional settings. Upon completing the requirements for a Master of Science degree in Fire Protection Engineering, students should be able to:

- a) Identify relevant fire safety codes, standards and regulations, comprehend the fire safety performance objectives and criteria associated with these documents, and apply these fire safety objectives and criteria to a broad range of applications.

- b) Analyze the flammability characteristics of different materials, interpret the results of standard and non-standard fire test methods and evaluate the fire hazards associated with different materials in a range of anticipated settings.
- c) Analyze the dynamics of fires in and around buildings and other structures through the application of fundamental principles and the use of state-of-the-art computer-based fire simulation models.
- d) Understand how people interact with fire conditions in buildings and calculate evacuation times through the application of fundamental principles of people movement and the use of state-of-the-art computer-based evacuation models.
- e) Design fire detection and alarm systems, fire suppression systems, smoke management systems, egress systems and structural fire protection to achieve specified performance objectives.
- f) Perform comprehensive fire and life safety evaluations of buildings and other structures through application of the knowledge, skills and tools acquired in this program and effectively communicate the results and findings of such evaluations.

Assessment of student learning will take several forms including direct examination of student work; feedback from students via (for example) course evaluations, surveys, and focus groups; and alumni and employer surveys. With advice and counsel from an industry-based advisory board, the program's faculty program committee will draw on the assessment results in pursuing continuous improvements in curriculum and other aspects of program design/implementation.

#### **4. Anticipated student demand:**

	Number of Students		
	<u>at initiation</u>	<u>3 years after initiation</u>	<u>5 years after initiation</u>
Number of Majors	20	40	40
Number of Graduates	0	20-30	40-50

#### **Indicate briefly what these projections are based upon:**

Twenty students are expected in the first class, with enrollment increasing to forty students by the fifth year of operations. It is estimated it will take students 5-6 quarters to complete the program. Since the program is designed for working professionals as well as students continuing directly from undergraduate degrees, some will only attend part-time.

The anticipated student demand for the proposed FPE program is based on a survey distributed to the California and Nevada chapters of the Society of Fire Protection Engineers (SFPE) and to the California Fire Prevention Officers (CFPO) organizations in northern and southern California. The CFPO organizations represent the fire code enforcement authorities in small, medium and large jurisdictions throughout California. The SFPE and the CFPO distributed the survey to their member organizations.



5. **If additional resources (faculty, student allocations, support staff, facilities, equipment, etc.) will be required, please identify the resources, indicate the extent of the college's commitment to allocate them, and evidence that college decision-making committees were aware of the sources of resource support when they endorsed the proposal. If the college expects the university to provide additional resources, please identify the resources and anticipated cost.**

A coordinator will be required to develop and maintain this program. This coordinator will be supported by income generated by the program. Support has been received from the California State University Commission on the Extended University and the Society of Fire Protection Engineers' Education and Scientific Foundation. Additional funding is being sought from private industry to help support this program. The program will operate through special session so no state general funds will be required to start or maintain the program. The program will be financially self-supporting.

6. ***If the program is occupational or professional, summarize evidence of need for graduates with this specific education background:***

The shortage of fire protection engineers in California is critical. Despite the demonstrated need for individuals trained in this field, there are no graduate degree programs in fire protection engineering west of the Mississippi. The only two existing programs in fire protection engineering are in Maryland and Massachusetts. In addition to the traditional fire protection engineering field, California has a unique Wildland Urban Interface (WUI) fire problem that fire protection engineers can help address. As our WUI areas continue to expand along with the overall population, California can expect to realize even greater human and property loss from fires.

The lack of degree opportunities has created significant demand for individuals with fire protection engineering expertise in California. More positions open each year than there are qualified individuals to fill them. This demand is expected to expand in California and other western states, which continues to be one of the fastest growing regions in the country.

In its 2009 recruitment survey, the SFPE reported that of 56 respondents, 33 (59%) attempted to hire a FPE despite the economic downturn. Of these 33, 21 (64%) experienced difficulties with the hiring process, with the primary issue being a lack of applicants in the geographic location. Of the 56 respondents, 49 (88%) anticipated hiring additional FPEs within the next 5 years. Of these 49, 36 (73%) felt it would be difficult to find qualified applicants.

7. ***If the new program is currently a concentration or specialization, include a brief rationale for conversion:***

N/A

8. ***If the new program is not commonly offered as a bachelor's or master's degree, provide compelling rationale explaining how the proposed subject area constitutes a coherent, integrated degree major which has potential value for students. If the new program does not appear to conform to the CSU Trustee policy calling for "broadly based programs," provide rationale:***

The discipline of fire protection engineering is not new; however, programs designed to educate individuals to be fire protection engineers have not been offered by the California State University. There is only one undergraduate program in the country at the University of Maryland. There are only two graduate programs, University of Maryland and Worcester Polytechnic Institute.

Fire protection engineering is recognized as a distinct engineering discipline in the State of California as well as in most other states. Engineers practicing in this discipline must be licensed as professional engineers. Students in this program will be prepared to sit for the professional engineering examination in this discipline.

9. **Briefly describe how the new program fits with the mission and/or strategic plan for the department, college and/or university:**

The addition of this program will not impede the successful operation and growth of existing programs on campus. As a special session program offered under Executive Order 802, the program will be administratively and academically completely self-supporting. No general fund resources from either the College of Engineering or any other academic units will be used to support this program. The program's interdisciplinary structure, application of theory to practice, and outreach and engagement features support and advance the missions of Cal Poly, the College of Engineering, and Continuing Education and University Outreach.

Cal Poly Mission Statement

Cal Poly fosters teaching, scholarship, and service in a learn-by-doing environment where students and faculty are partners in discovery. As a polytechnic university, Cal Poly promotes the application of theory to practice. As a comprehensive institution, Cal Poly provides a balanced education in the arts, sciences, and technology, while encouraging cross-disciplinary and co-curricular experiences. As an academic community, Cal Poly values free inquiry, cultural and intellectual diversity, mutual respect, civic engagement, and social and environmental responsibility.

This program enhances the strong polytechnic mission of Cal Poly by applying engineering and architectural theories to fire protection. The program expands our civic engagement initiatives by producing graduates who will reduce the loss of lives and property in California due to fire.

**10. Attach a display of curriculum requirements.**

<b>Required Courses</b>	<b>Units</b>	<b>Prerequisite</b>
FPE 501 Fundamental Thermal Sciences	4	Grad Standing or consent
FPE 502 Fire Dynamics	4	FPE 501 or consent
FPE 503 Flammability Assessment Methods	4	FPE 502
FPE 504 Fire Modeling	4	FPE 502, FPE 503
FPE 521 Egress Analysis and Design	4	Grad Standing or consent
FPE 522 Fire Detection, Alarm and Communication Systems	4	Grad Standing or consent
FPE 523 Water-based Fire Suppression	4	FPE 501 or consent
FPE 524 Structural Fire Protection	4	Grad Standing or consent
FPE 596 Capstone Experience in Fire Protection Engineering	5	FPE 504, advanced graduate standing, completion of, or concurrent enrollment in, engineering courses in program, & consent
<b>TOTAL</b>	<b>37</b>	

<b>Elective Courses</b>	<b>Units</b>	<b>Prerequisite</b>
FPE 551 Fire Safety Regulation and Management	4	Grad Standing or consent
FPE 552 Smoke Management and Special Hazards	4	FPE 502, FPE 504
FNR 455 Wildland-Urban Interface Fire Protection	3	Consent
ME 541 Advanced Thermodynamics	4	ME 303, ME 343, ME 347, MATH 244, Grad Standing
ME 554 Computational Heat Transfer	4	ME 343, ME347, Math 418, Grad Standing
Choose a total of 8 units from elective courses	8	
<b>TOTAL NUMBER NEEDED FOR DEGREE</b>	<b>45</b>	



## Continuous Course/Curriculum Summary For Academic Senate Consent Agenda

**Note:** The following courses have been summarized by staff in the Academic Programs Office for review by the Academic Senate Curriculum Committee (ASCC) and Academic Senate (AS)

Date Updated: December 15, 2009

**Fall 2009 Review**

Items highlighted in red are to be considered by the Academic Senate.

### ITEMS TO BE CONSIDERED BY ACADEMIC SENATE

Program Name or Course Number, Title	ASCC recommendation/ Other	Academic Senate (AS)	Provost	Term Effective
MS Fire Protection Engineering (ME Dept), a pilot program	Approved 12/1/09			
FPE 501 Fundamental Thermal Sciences (4) 4 lec	Approved 12/1/09			
FPE 502 Fire Dynamics (4) 4 lec	Approved 12/1/09			
FPE 503 Flammability Assessment Methods (4) 4 lec	Approved 12/1/09			
FPE 504 Fire Modeling (4) 4 lec	Approved 12/1/09			
FPE 521 Egress Analysis and Design (4) 4 lec	Approved 12/1/09			
FPE 522 Fire Detection, Alarm and Communication Systems (4) 4 lec	Approved 12/1/09			
FPE 523 Water-based Fire Suppression (4) 4 lec	Approved 12/1/09			
FPE 524 Structural Fire Protection (4) 4 lec	Approved 12/1/09			
FPE 551 Fire Safety Regulation and Management (4) 4 lec	Approved 12/1/09			
FPE 552 Smoke Management and Special Hazards (4) 4 lec	Approved 12/1/09			
FPE 596 Culminating Experience in Fire Protection Engineering (5) supv	Approved 12/1/09			